

**TC 2.3 - Gaseous Contaminants/Removal Equipment**  
**Chapter 11 - Air Contaminants in Fundamentals Handbook - 2025**  
**Chapter 47 – Air Cleaners for Gaseous Contaminants in HVAC Applications- 2023**  
**Winter 2021 Handbook Sub-Committee Minutes**

1. Call to order at 2:00pm
2. Attendees:

B. Krafthefer (Chair)  
Paula Levasseur  
Sanjeev Hingorani  
Len Duello  
K-J Choi  
Michael Sherber  
Nick Agopian  
Caitlin Naske  
Gemma Kerr  
Kevin Kwong

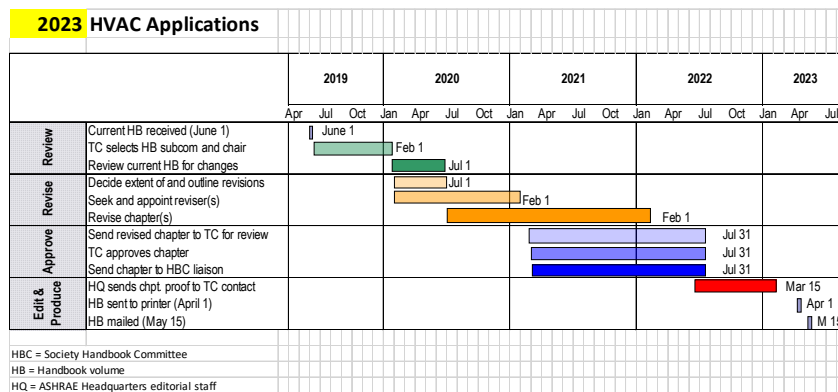
Victoria Binz  
Mick Flom  
Kathleen Owen  
Vivek Gaur  
Chris Muller  
Lane Flora  
Chang-Seo Lee  
Paolo Tronville  
Marilyn Listvan  
Dave Schaaf

3. ASHRAE 2.3 Handbook Liaison for Ch 47 present.
4. Assignment of minutes taker - Kevin Kwong took minutes..
5. Brian will send out Chapters sent as soon as received from ASHRAE.
6. The timelines for the two chapters are included below.
7. Chapter 47, Air Cleaners for Gaseous Contaminants in HVAC Applications – into ASHRAE by July 2022
  - a. Discussion on who will lead chapter review. Brian volunteers to continue to be the overall handbook subcommittee chair. Mike Sherber has volunteered to lead the review for chapter 47
  - b. Heather had sent the following comment on the chapter:

A reader has sent in a question about Equations (5) and (7) in Chapter 47 (Air Cleaners for Gaseous Contaminants) of the 2015 and 2019 *ASHRAE Handbook—HVAC Applications* in that they both read the same. The question is that in equation 5  $K_nA$  is subtracted on the numerator while equation 7  $K_nA$  is added. Is this correct? The equations in question were introduced in 2015, and as far as can be determined were reproduced accurately, but verification of either of them has not been done independently. Would you and the rest of the Handbook Committee please respond? I will be glad to supply any other help I can.

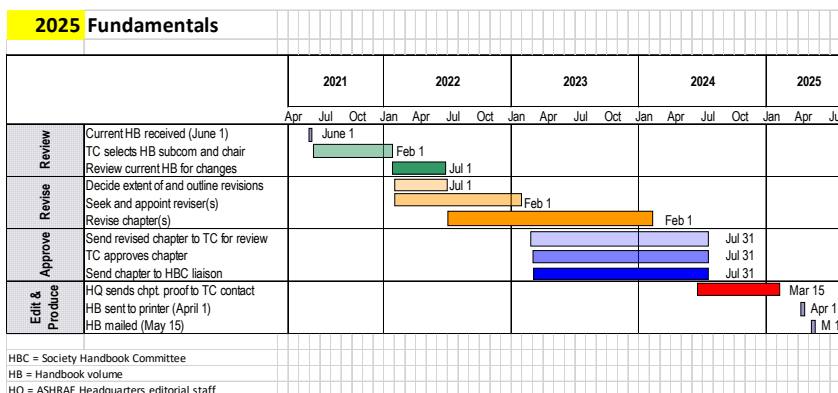
- i. Comments are needed on Equations 5 and 7. Marilyn volunteered to help Brian to take a closer look at these equations
  - c. From the update of 145.2 should any of the equations be put in chapter 47?
    - i. Paula suggested waiting for review from SSPC 145. Brian concludes that we should put this on hold until SSPC 145 review is finished.
    - ii. Marilyn recommended we can take the equations from the existing 145.2
    - iii. Nick commented that if we put in any equations from 145.2, we need to state that EACs do not have a test protocol
    - iv. Brian will look for equations from the current 145.2 and send to Kathleen for review. Goal is to put these into Chapter 47. Kathleen's caveat is we should wait for final SSPC 145 review but agrees to help review.
  - d. Chapter Reviewers should come from outside and inside ASHRAE. New reviews should try to be done by April, 2021. Nick might have outside consultants (Richard and Paul) who could review. They have real-world experience. Nick will send contact info to Brian.
  - e. The committee will start reviewing the sections in the Chapter.
    - i. Kathleen mentioned that from the ETF perspective, we need to have more info on in-room air cleaners in the Handbook Chapters. Do we need a section in Chapter 47 or even a new Chapter? Gemma recommends starting it in Chapter 47. Kathleen and Brian were in agreement.

- ii. Marilyn will look over Sections 1 and 3
- iii. Paula will look at Sections and inform Brian.
- iv. Brian asked all other subcommittee members to email him their desired Sections for review.
- v. Chapter 47 is available on ASHRAE's website  
([https://www.ashrae.org/file%20library/technical%20resources/ashrae%20handbook/i-p\\_a19\\_ch47.pdf](https://www.ashrae.org/file%20library/technical%20resources/ashrae%20handbook/i-p_a19_ch47.pdf) or bottom of page on <https://www.ashrae.org/technical-resources/ashrae-handbook>)
- vi. KJ mentioned that there are some redundant portions in Chapter 47's Equipment section. He will review redundancies.
- f. Chang-Seo will look at references with Brian's Caitlin's help.
- g. Victoria volunteered to work on seeing if permissions are needed for the tables and graphs.
- h. Other Actions
  - i. Chapter 47 must be submitted by July 2022.
  - ii. Brian has not been able to log into the Author Portal and is waiting on Heather to send the Word versions of the chapters. Brian will then distribute to the subcommittee.



8. Chapter 11 — into ASHRAE by July 2024

- a. Michael Sherber volunteered to lead, Gemma and Brian will assist. Revisions must be finished by 2024.
- b. The 2021 Chapter 11 was sent into ASHRAE – the galley's come out in February, 2021
- c. Committee should start to get reviewers for the chapter and start reviewing the graphs and tables for any updates and permissions and should also start reviewing the references.



- 9. Future possible telecon times. Brian will set up with Mike Vaughn to send out a Doodle Poll
  - March – Ch. 47 - the 2<sup>nd</sup> week of March
  - May – Ch. 47 – the 3<sup>rd</sup> week of May
  - Brian will send out a reminder by the 2<sup>nd</sup> week of Feb along with the minutes.

10. Adjournment at 2:36pm